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(54) **Lattice-reduction-aided detection applying a modified Lenstra-Lenstra-Lovasz (LLL) algorithm**

(57) In a wireless communications system, an inverse of a lattice reduction matrix can be obtained at the same time as performance of the LLL algorithm to determine the lattice reduction. This is achieved by interposing

in the LLL algorithm corresponding steps applied to a running calculation of the inverse matrix. Similarly, a row-wise sum of the inverse matrix can be calculated, if this is all that is required in subsequent processing.

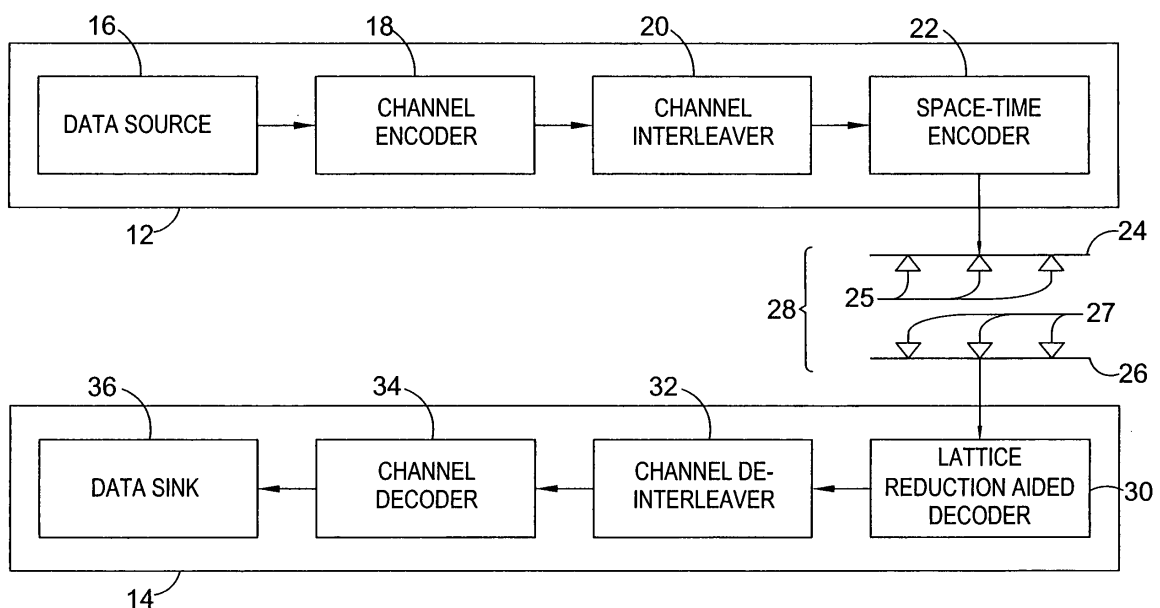


Fig. 3

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
D,A	WOBHEN D ET AL: "MMSE-based lattice-reduction for near-ML detection of MIMO systems" ITG WORKSHOP ON SMART ANTENNAS, MUNICH, GERMANY, 18 March 2004 (2004-03-18), - 19 March 2004 (2004-03-19) pages 106-113, XP010780087 NJ, USA ISBN: 0-7803-8327-3 * abstract * Sections I-VI Appedix * table 1 *	1-18	INV. H04L25/02
A	----- US 6 724 843 B1 (CLARKSON KENNETH L [US] ET AL) 20 April 2004 (2004-04-20) * abstract * * column 2, line 15 - line 67 * * column 3, line 30 - column 6, line 60 * * column 9, line 44 - column 11, line 15 * * column 12, line 54 - column 13, line 45 * -----	1-18	TECHNICAL FIELDS SEARCHED (IPC) H04L
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 4 December 2007	Examiner Dhibi, Youssef
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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04-12-2007

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6724843	B1	20-04-2004	NONE

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82